

#### ABSTRACT OF THE DISCLOSURE

The invention is directed to techniques for maintaining a map of node relationships for a network of nodes (e.g., network of computers). In one example, the map of node relationships represents relationships overlaying and typically different from the network of physical

5 connections among the nodes. Each child node periodically checks in with its parent nodes, and the parent nodes can thus determine when a child node has terminated a relationship with the parent or created a new relationship with a new parent. Changes in relationships propagate upward through the network of nodes so that each node maintains a map of the relationships among the descendants of that node. A root node receives the propagated change relationship

10 information and maintains a map of the entire network and valid pathways through the network. The root node can use the map when responding to a request from a client to receive services from a node in the network and redirects the client to attach to a node in the network that has a valid path to the root node. The root node can then broadcast data (e.g. a stream of video data) throughout the network, which is received by all the clients attached to nodes in the network.